REMARKS

The Office Action dated May 16, 2006, has been received and carefully considered. In this response, the specification and claims 1, 5, 10, and 14 have been amended. Entry of the amendments to the specification and claims 1, 5, 10, and 14 is respectfully requested. Reconsideration of the outstanding objections/rejections in the present application is also respectfully requested based on the following remarks.

I. THE INFORMATION DISCLOSURE STATEMENT

An Information Disclosure Statement and accompanying PTO-1449 form were filed on December 8, 2003. There is presently no indication that the Examiner considered the references identified in that Information Disclosure Statement. Accordingly, the Examiner is respectfully requested to acknowledge consideration of the references identified in that Information Disclosure Statement by initialing the PTO-1449 form and returning a copy of the initialed form to the undersigned.

II. THE ELECTION/RESTRICTION REQUIREMENT

On page 1 of the Office Action, the Examiner asserts that the election/restriction requirement is deemed proper and thus made final since the method can be used to make an amplifier,

but the product can be used to make a printed circuit board. Applicants respectfully submit that this does not make sense. Also, under 35 U.S.C. § 121, restriction is appropriate if two or more independent and distinct inventions are claimed in one application. As set forth in MPEP § 802.01, inventions are independent if there is no disclosed relationship between the two or more subjects disclosed, and inventions are distinct if two or more subjects as disclosed are capable of separate manufacture, use, or sale as claimed. The Examiner apparently attempts to explain how the multilayer signal routing device as defined in claims 15-19 is distinct from the method for routing in a multilayer signal routing as defined in claims 1-14. However, the Examiner fails to explain how the multilayer signal routing device as defined in claims 15-19 is independent from the method for routing in a multilayer signal routing device as defined in claims 1-14. That is, it is clear that the multilayer signal routing device as defined in claims 15-19 and the method for routing in a multilayer signal routing device as defined in claims 1-14 are both directed to routing conductive traces in multilayer signal routing devices. Thus, the multilayer signal routing device as defined in claims 15-19 and the method for routing in a multilayer signal routing device as defined in claims 1-14 are related and are not independent from

each other. Accordingly, it is respectfully submitted that the election/restriction requirement is improper, and the withdrawal of such election/restriction requirement is respectfully requested.

III. THE OBJECTION TO THE SPECIFICATION

On page 1 of the Office Action, the specification was objected to for having a non-descriptive title.

The specification has been amended to address the Examiner's concerns.

In view of the foregoing, it is respectfully requested that the aforementioned objection to the specification be withdrawn.

IV. THE DOUBLE-PATENTING REJECTION OF CLAIMS 1-14

On page 1 of the Office Action, claims 1-14 were rejected under the judicially created doctrine of obviousness-type double-patenting as being unpatentable over claims of U.S. Patent Nos. 6,388,890 and 6,545,876.

Applicants respectfully request that this rejection be held in abeyance until all other substantive issues in the present patent application have been resolved.

V. THE ANTICIPATION REJECTION OF CLAIMS 1-14

On page 3 of the Office Action, claims 1-14 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hirano (U.S. Patent No. 5,633,479). This rejection is hereby respectfully traversed with amendment.

Under 35 U.S.C. § 102, the Patent Office bears the burden of presenting at least a prima facie case of anticipation. In re Sun, 31 USPQ2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Anticipation requires that a prior art reference disclose, either expressly or under the principles of inherency, each and every element of the claimed invention. Id.. "In addition, the prior art reference must be enabling." Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). That is, the prior art reference must sufficiently describe the claimed invention so as to have placed the public in possession of it. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). Such possession is effected only if one of ordinary skill in the art could have combined the disclosure in the prior art reference with his/her own knowledge to make the claimed invention. Id..

Regarding claim 1, the Examiner asserts that Hirano discloses a plurality of semiconductor elements to be mounted on

a wiring structure (column 1, lines 9-11); different levels with connections (Figure 9); and that it is inherent that a plurality of semiconductor elements are mounted on the structure and make connections at different levels with different groups of semiconductors elements. However, it is respectfully submitted that Hirano fails to disclose, or even suggest, a method for routing one or more conductive traces between a plurality of electronic components of a multilayer signal routing device comprising: forming a first inter-component channel for accommodating a plurality of conductive traces at a first routing layer of the multilayer signal routing device, the first inter-component channel extending between a first set of two or more electronic components of the plurality of electronic components and having a first orientation, the first inter-component channel formed by arranging vias for at least the first set of two or more electronic components in the multilayer signal routing device; and forming a second inter-component channel for accommodating a plurality of conductive traces by arranging vias at a second routing layer of the multilayer signal routing device, the second inter-component channel extending between a second set of two or more electronic components of the plurality of electronic components and having a second orientation different from the first orientation, the

second inter-component channel formed by arranging vias for at least the second set of two or more electronic components in the multilayer signal routing device, as presently claimed. Specifically, Hirano fails to disclose, or even suggest, forming inter-component channels for accommodating a plurality of conductive traces at routing layers of a multilayer signal routing device by arranging vias for two or more electronic components in the multilayer signal routing device. In contrast, Hirano merely discloses aligning power/ground and signal conductors on separate layers of a multilayer circuit board. At this point it should be noted that, as stated in MPEP § 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Also, as stated in MPEP § 2112, "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). The fact that a certain result or characteristic may occur or be present in the prior art is not

sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

In view of the foregoing, it is respectfully submitted that Hirano fails to teach, or even suggest, the claimed invention as set forth in claim 1. Thus, is it further respectfully submitted that claim 1 is allowable over Hirano.

Regarding claims 2-9, these claims are dependent upon independent claim 1. Thus, since independent claim 1 should be allowable as discussed above, claims 2-9 should also be allowable at least by virtue of their dependency on independent claim 1. Moreover, these claims recite additional features which are not disclosed, or even suggested, by the cited references taken either alone or in combination.

Regarding claim 10, this claim recites subject matter related to claim 1. Thus, the arguments set forth above with respect to claim 1 are equally applicable to claim 10. Accordingly, is it respectfully submitted that claim 10 is allowable over Hirano for the same reasons as set forth above with respect to claim 1.

Regarding claims 11-14, these claims are dependent upon independent claim 10. Thus, since independent claim 10 should be allowable as discussed above, claims 11-14 should also be

allowable at least by virtue of their dependency on independent claim 10. Moreover, these claims recite additional features which are not disclosed, or even suggested, by the cited references taken either alone or in combination.

In view of the foregoing, it is respectfully requested that the aforementioned anticipation rejection of claims 1-14 be withdrawn.

VI. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

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Respectfully submitted,

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APPENDIX A

Please replace the title on page 1, lines 1-2, with the following:

TECHNIQUE FOR ROUTING CONDUCTIVE TRACES BETWEEN A PLURALITY OF ELECTRONIC COMPONENTS OF A MULTILAYER SIGNAL ROUTING DEVICE

APPENDIX B

1 (Currently Amended). A method for routing one or more conductive traces between a plurality of electronic components of a multilayer signal routing device, the method comprising:

forming a first inter-component channel for accommodating a plurality of conductive traces at a first routing layer of the multilayer signal routing device, the first inter-component channel extending between a first set of two or more electronic components of the plurality of electronic components and having a first orientation, the first inter-component channel formed by arranging vias for at least the first set of two or more electronic components in the multilayer signal routing device; and

forming a second inter-component channel for accommodating a plurality of conductive traces by arranging vias at a second routing layer of the multilayer signal routing device, the second inter-component channel extending between a second set of two or more electronic components of the plurality of electronic components and having a second orientation different from the first orientation, the second inter-component channel formed by arranging vias for at least the second set of two or more electronic components in the multilayer signal routing device.

2 (Original). The method as in Claim 1, further comprising the step of routing at least one conductive trace between at least one electronic component of the first set of electronic components and at least one electronic component of the second set of electronic components via at least a portion of the first inter-component channel and at least a portion of the second inter-component channel.

3 (Original). The method as in Claim 2, further comprising the step of forming a conductive path between the first inter-component channel at the first routing layer and the second inter-component channel at the second routing layer.

4 (Original). The method as in Claim 3, wherein the conductive path includes a blind via or a microvia.

5 (Currently Amended). The method as in Claim 1, further comprising the step of forming a third inter-component channel for accommodating a plurality of conductive traces at a routing layer of the multilayer signal routing device, the third inter-component channel extending between a third set of two or more electronic components of the plurality of electronic components and having a third orientation substantially parallel to the

first orientation, the third inter-component channel formed by arranging vias for at least the third set of two or more electronic components in the multilayer signal routing device.

6 (Original). The method as in Claim 5, further comprising the step of routing at least one conductive trace between at least one electronic component of the first set of electronic components and at least one electronic component of the third set of electronic components via at least a portion of the first inter-component channel, at least a portion of the second inter-component channel and at least a portion of the third inter-component channel.

7 (Original). The method as in Claim 5, wherein the third inter-component channel is formed at the first routing layer of the multilayer signal routing device.

8 (Original). The method as in Claim 5, wherein the third inter-component channel is formed at a third routing layer of the multilayer signal routing device.

9 (Original). The method as in Claim 1, further comprising the step of forming one or more conductive paths between one or more

of the electronic components and one or more of the first and second inter-component channels.

10 (Currently Amended). A method for routing one or more conductive traces between a plurality of electronic components of a multilayer signal routing device, the method comprising:

forming a first set of one or more inter-component channels each for accommodating a plurality of conductive traces at a first set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the first set of inter-component channels extends between at least two of the plurality of electronic components and has an orientation substantially parallel to a first orientation, the first set of inter-component channels formed by arranging vias for at least the two electronic components in the multilayer signal routing device;

forming a second set of one or more inter-component channels each for accommodating a plurality of conductive traces at a second set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the second set of inter-component channels extends between at least two of the plurality of electronic components and has an orientation substantially parallel to a second orientation

different from the first orientation, the second set of inter-component channels formed by arranging vias for at least the two electronic components in the multilayer signal routing device; and

routing at least one conductive trace from at least one electronic component to at least one other electronic component via at least one portion of one or more inter-component channels of the first and second sets of inter-component channels.

11 (Original). The method as in Claim 10, further comprising the step of forming one or more conductive paths between one or more inter-component channels of the first set of inter-component channels and one or more inter-component channels of the second set of inter-component channels.

12 (Original). The method as in Claim 10, wherein a number of routing layers of the first set of routing layers is based at least in part on a number of conductive traces at least partially routed in a direction substantially parallel to the first orientation and a number of inter-component channels formed at each routing layer of the first set of routing layers.

13 (Original). The method as in Claim 12, wherein a number of

routing layers of the second set of routing layers is based at least in part on a number of conductive traces at least partially routed in a direction substantially parallel to the second orientation and a number of inter-component channels formed at each routing layer of the second set of routing layers.

14 (Currently Amended). The method of Claim 10, further comprising the steps of:

forming a third set of one or more inter-component channels each for accommodating a plurality of conductive traces at a third set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the third set of inter-component channels extends between at least two of the plurality of electronic components and has a third orientation different from the first and second orientations, the third set of inter-component channels formed by arranging vias for at least the two electronic components in the multilayer signal routing device; and

routing at least one conductive trace from at least one electronic component to at least one other electronic component via at least one portion of one or more inter-component channels of the first, second and third sets of inter-component channels.

15 (Original). A multilayer signal routing device having a plurality of routing layers and comprising:

a plurality of electronic components;

a first set of one or more inter-component channels at a first set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the first set of inter-component channels extends between at least two of the plurality of electronic components and has an orientation substantially parallel to a first orientation;

a second set of one or more inter-component channels at a second set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the second set of inter-component channels extends between at least two of the plurality of electronic components and has an orientation substantially parallel to a second orientation different from the first orientation; and

at least one conductive trace routed from at least one electronic component to at least one other electronic component via at least one portion of one or more inter-component channels of the first and second sets of inter-component channels.

16 (Original). The multilayer signal routing device as in Claim 15, further comprising one or more conductive paths formed between one or more inter-component channels of the first set of inter-component channels and one or more inter-component channels of the second set of inter-component channels.

17 (Original). The multilayer signal routing device as in Claim 15, wherein a number of routing layers of the first set of routing layers is based at least in part on a number of conductive traces at least partially routed in a direction substantially parallel to the first orientation and a number of inter-component channels formed at each routing layer of the first set of routing layers.

18 (Original). The multilayer signal routing device as in Claim 17, wherein a number of routing layers of the second set of routing layers is based at least in part on a number of conductive traces at least partially routed in a direction substantially parallel to the second orientation and a number of inter-component channels formed at each routing layer of the second set of routing layers.

19 (Original). The multilayer signal routing device of Claim

15, further comprising:

a third set of one or more inter-component channels at a third set of one or more routing layers of the multilayer signal routing device, wherein each inter-component channel of the third plurality of inter-component channels extends between at least two of the plurality of electronic components and has a third orientation different from the first and second orientations; and

at least one conductive trace routed from at least one electronic component to at least one other electronic component via at least one portion of one or more inter-component channels of the first, second and third sets of inter-component channels.